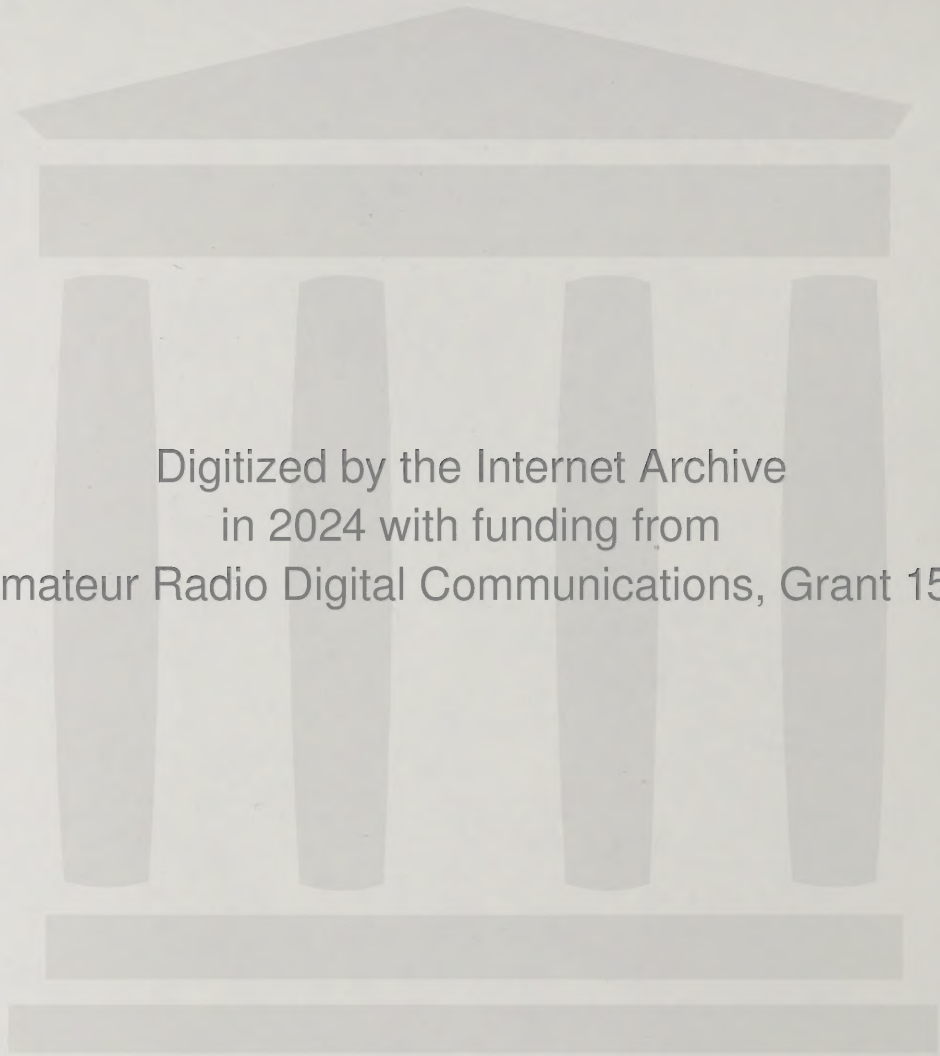
PRELIMINARY SERVICE MANUAL

R1040

REGENCY ELECTRONICS, INC.
7707 Records Street
Indianapolis, Indiana
46226

0300-1242-500



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R1040 ALIGNMENT PROCEDURE

Alignment Procedure

Equipment Required

FM Signal Generator
AC Voltmeter Capable of Reading 455 kHz
Frequency Counter
DC Voltmeter, preferably Digital Type

A. VCO Adjustment and Netting

1. Program 512 MHz into Channel 1.

2. Adjust L116 for a voltage of 14.5 volts (DVM) at the Junction of R149 and C157.

3. Program 144 MHz into Channel 2. Voltage at Junction of R149 and C157 should read 1.2 to 3.2 volts (DVM).

4. Program 50 MHz into Channel 3.

5. Adjust L118 for a voltage of 17.5 volts (DVM) at Junction of R149 and C157.

6. Program 30 MHz into Channel 4. Voltage at Junction of R149 abd C157 should read 1.5 to 3.5 volts (DVM).

7. Program 160.7 MHz into Channel 5.

8. Connect Frequency Counter to Junction of C135, R146 and R147.

9. Adjust C189 for a frequency reading of 75.00000 MHz $\pm$70 Hz.

B. Receiver - Low Band, IF and Audio

1. Program 39.3 MHz into Channel 6.

2. With Signal Generator (no modulation) accurately set on frequency, tune L103 for MAXIMUM signal on TP101. Reduce generator's output if necessary to properly peak these coils.

3. Very carefully tune L109 for MAXIMUM signal on TP101.

4. Modulate signal with 1 kHz modulation 3 kHz deviation. Tune L112 for MAXIMUM audio.

5. Check sensitivity (.35 uV).

C. Receiver - High Band

1. Program 158.3 MHz into Channel 7.

2. Tune L105 and L113 for MAXIMUM signal on TP101.

3. Check sensitivity (.5 uV).

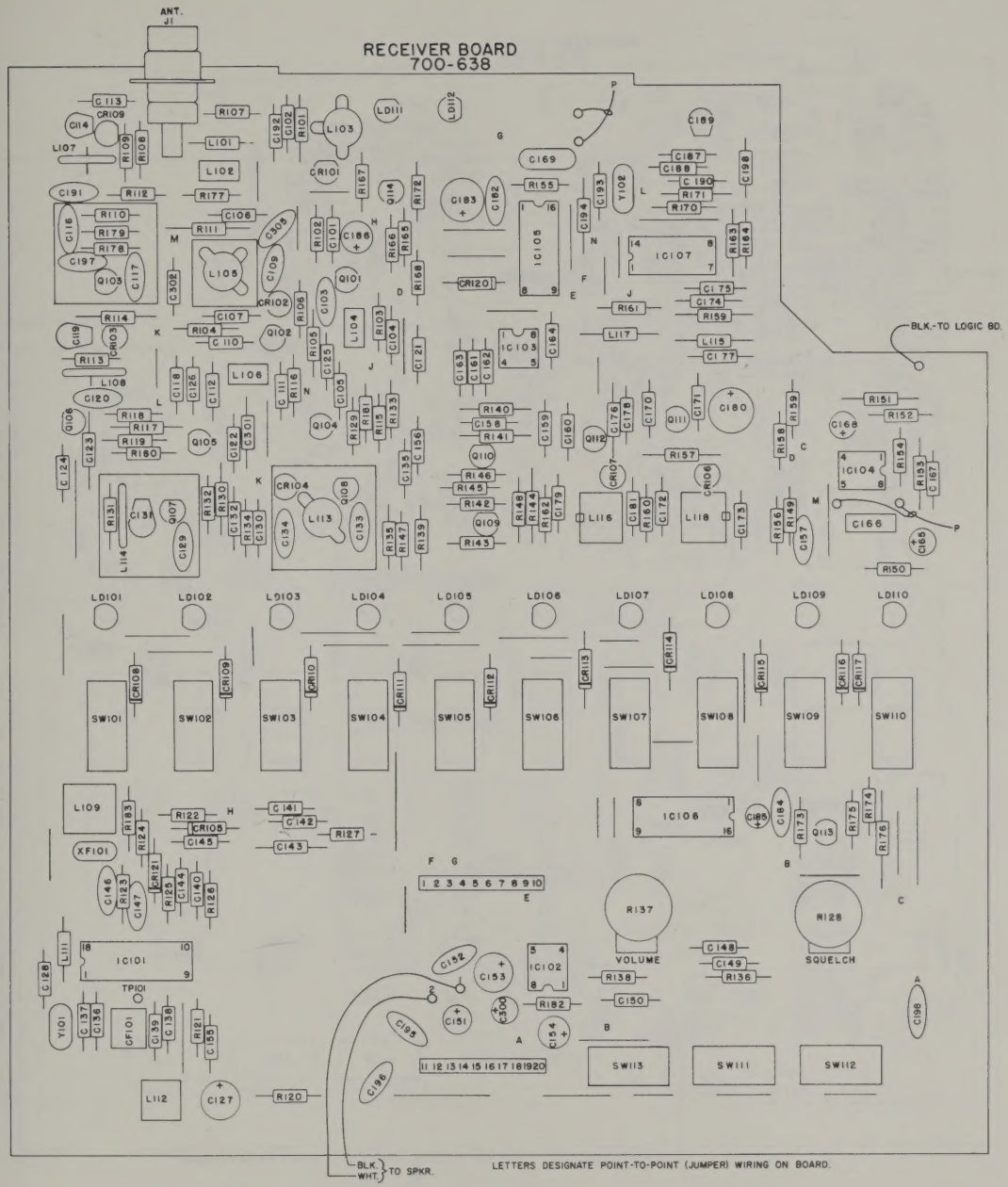
D. Receiver - UHF Band

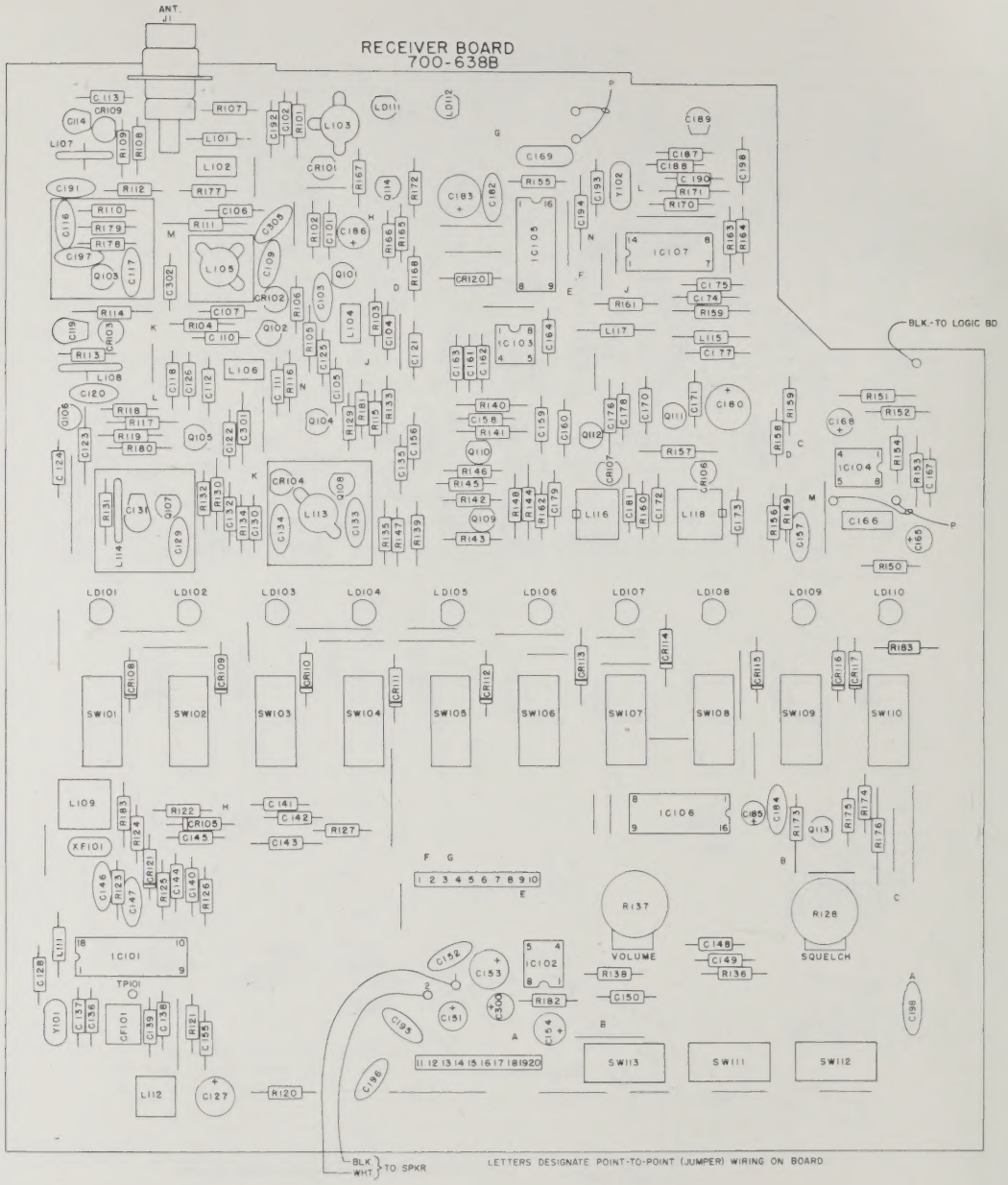
1. Program 465.3 MHz into Channel 1.

2. Adjust C131, C114 and C119 (in that order) for MAXIMUM signal on TP101. Repeat until no improvement is noted.

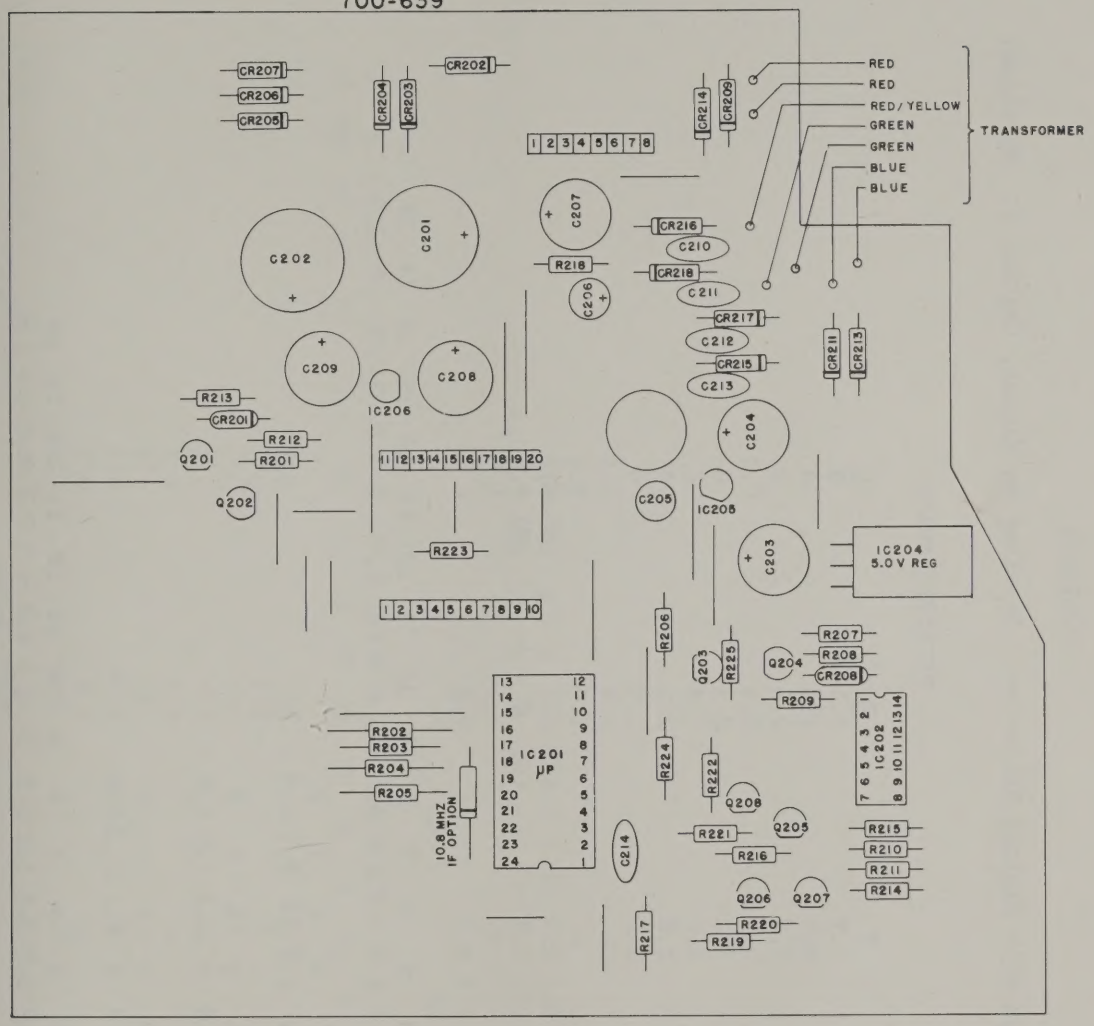
3. Check voltage at Junction of Emitter Q107 and R129 (put voltmeter on lead at R129). Voltage should be less than 3.5 volts DC.

4. Check 12 dB SINAD sensitivity or 14 dB quieting (.7 uV).


ANT.
J1
RECEIVER BOARD
700-638
BLK.-TO LOGIC BD.
BLK.
WHT.
TO SPKR.
VOLUME
SQUELCH
LETTERS DESIGNATE POINT-TO-POINT (JUMPER) WIRING ON BOARD.


RECEIVER BOARD
700-638B
ANT.
J1
BLK.-TO LOGIC BD
LD101
LD102
LD103
LD104
LD105
LD106
LD107
LD108
LD109
LD110
SW101
SW102
SW103
SW104
SW105
SW106
SW107
SW108
SW109
SW110
SW111
SW112
SW113
VOLUME
SQUELCH
TP101
XF101
TO SPKR
BLK
WHT
LETTERS DESIGNATE POINT-TO-POINT (JUMPER) WIRING ON BOARD

LOGIC BOARD
700-639



VOLTAGES

All voltages taken with Digital Voltmeter. Receiver on Manual, Channel 1. No signal applied.

RECEIVER BOARD

	E	B	C
Q101 (Low Band)	2.7	2.1	0
Q102 (High Band)	2.4	1.6	0
Q103 (UHF)	3.6	2.8	0
Q104 (Low Band)	2.7	2.1	0.1
Q105 (High Band)	3.0	2.3	0
Q106 (UHF)	2.6	1.8	0
Q107 (UHF)	2.8	2.2	0
Q108 (UHF)	2.5	1.8	0
Q109	0	1.4	3.1
Q110	0	1.4	3.1
Q111 (FET)	(S) 2.3	(G) 0	(D) 4.8
Q112	(S) 1.4	(G) 0	(D) 4.8
Q113	0	.15	1.9
Q114	4.9	4.8	0.1

Pins	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18
IC101	4.7	4.1	4.6	4.8	1.0	1.0	1.0	4.8	3.5	2.8	4.3	2.4	2.5	0.7	0	0	0	2.0

Pins	1	2	3	4	5	6	7	8
IC102	1.4	0	0	0	9.4	18	9.3	1.3

Pins	1	2	3	4	5	6	7	8
IC103	3.9	2.2	2.2	3.8	0	0.1	3.0	4.8

Pins	1	2	3	4	5	6	7	8
IC104	-	0.1	0	2.4	0	8.1	21.3	9.8

Pins	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
IC106	3.9	3.9	2.8	3.9	3.9	3.9	3.5	3.5	0	3.9	0.6	4.9	0.2	0.2	4.9	4.9

LOGIC BOARD

	E	B	C
Q201	0	0.8	0.1
Q202	0	0.1	4.9
Q203	0	0	4.9
Q204	0	0.7	0.1
Q205	0	0.1	1.2
Q206	0	0.1	9.3
Q207	0	0.1	9.3
Q208	0	0.1	9.3

Pins	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
IC201	0	0	2.2	4.9	4.9	0.2	0.2	4.9	4.9	0	0.4	0	3.7	1.1	0.1	0.7	0	3.0	0	0

21	22	23	24
0.6	0.6	0.6	3.3

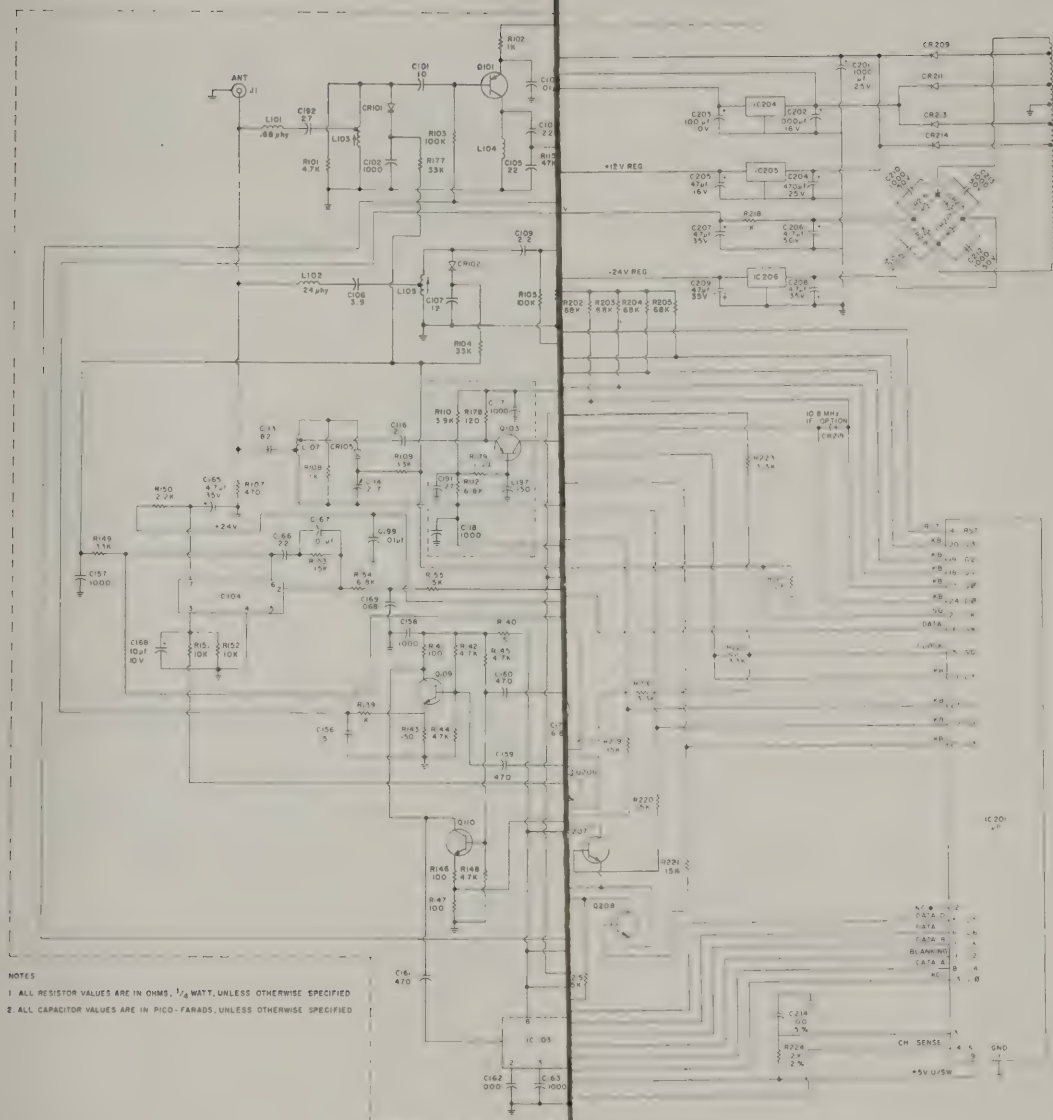
Pins	1	2	3	4	5	6	7	8	9	10	11	12	13	14
IC202	12	-23	0	0	0	12	9.3	9.3	9.3	0	0	0	0	2.0

IC203 Not Used

Pins	1	2	3
IC204	9.4	0	4.9

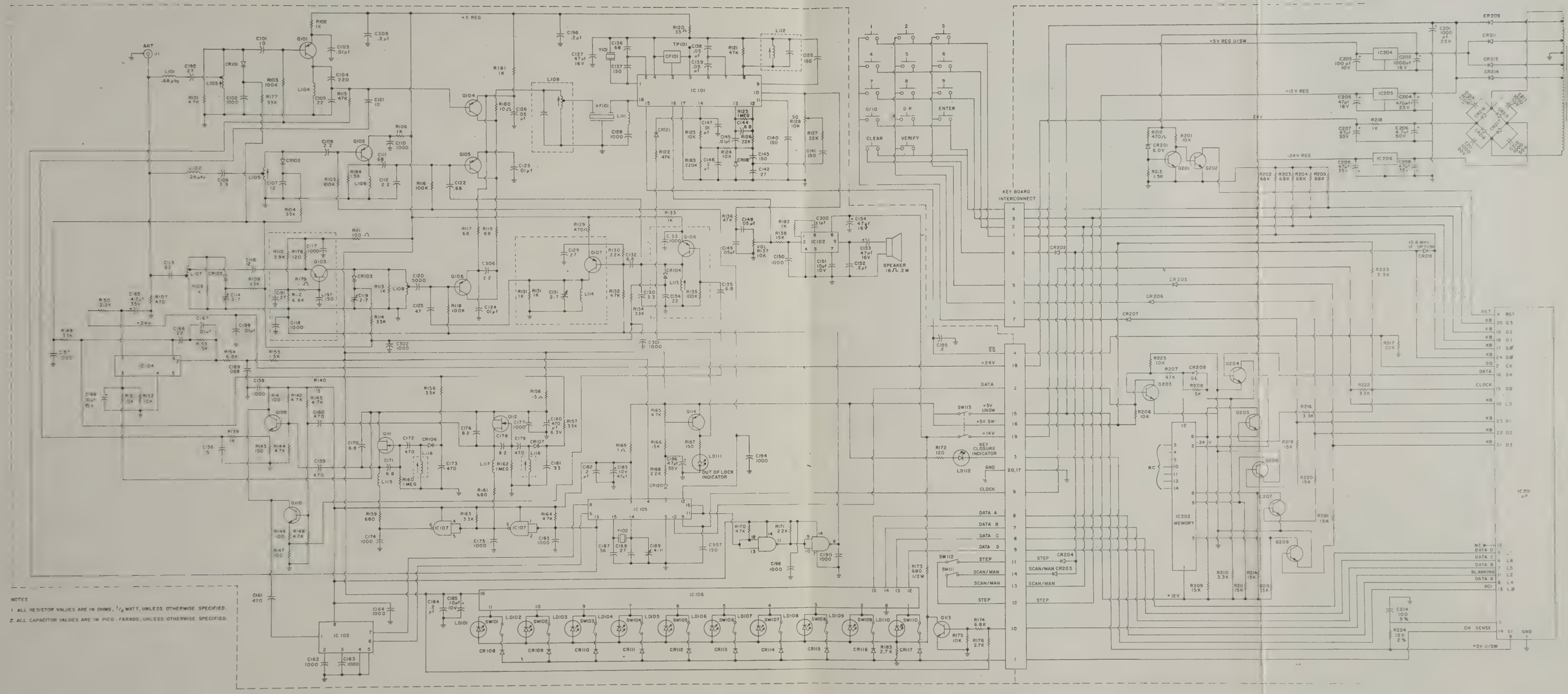
Pins	1	2	3
IC205	18	0	12

Pins	1	2	3
IC206	0	-35	-24



NOTES

1. ALL RESISTOR VALUES ARE IN OHMS, 1/4 WATT, UNLESS OTHERWISE SPECIFIED
2. ALL CAPACITOR VALUES ARE IN PICO-FARADS, UNLESS OTHERWISE SPECIFIED


+5 REG
+5V REG U/SW
+12V REG
-24V REG
KEY BOARD INTERCONNECT
IC 101
IC 102
IC 103
IC 104
IC 105
IC 106
IC 107
IC 202 MEMORY
IC 204
IC 205
IC 206
SPEAKER 16Ω 2W
OUT OF LOCK INDICATOR
KEY CLOSURE INDICATOR
10.8 MHz IF OPTION
0/10
D.P.
ENTER
CLEAR
VERIFY
DATA A
DATA B
DATA C
DATA D
STEP
SCAN/MAN
CLOCK
DATA
BLANKING
GND
+24V
+14V
+12 V
-24 V
+5V U/SW
CH SENSE
NOTES
1. ALL RESISTOR VALUES ARE IN OHMS, 1/4 WATT, UNLESS OTHERWISE SPECIFIED.
2. ALL CAPACITOR VALUES ARE IN PICO-FARADS, UNLESS OTHERWISE SPECIFIED.

R1040 PARTS LIST

RECEIVER BOARD

Item No.	Description	Part No.
	TRANSISTORS	
Q101, Q102, Q103, Q104, Q105, Q106, Q107, Q108	PNP	4801-0000-026
Q109, Q110	NPN (Red Top)	4801-0000-035
Q110, Q112	FET	4811-0000-020
Q113	NPN	4801-0000-016
Q114	PNP (White Top)	4801-0000-060
	INTEGRATED CIRCUITS	
IC101	IF ECG 860	3130-6056-500
IC102	Audio	3130-3167-916
IC103	Counter	3130-6060-604
IC104	OP Amp CA ~~3130~~ 3140	3130-3167-917
IC105	Synthesizer	3130-6068-000
IC106	Logic 74 L 5145	3130-3193-518
IC107	Logic ~~ECG 860~~ 74L	3130-3157-644
	DIODES	
CR101, CR102, CR104, CR106, CR107	Varactor	4809-0000-005
CR103	Varactor	4809-0000-012
CR105, CR108, CR109, CR110, CR111, CR112, CR113, CR114, CR115, CR116, CR117, CR118, CR121	Silicon	4805-1241-200
CR120	Germanium	4807-1233-900
LD101 Thru LD112	LED, Red	4810-1282-903

RECEIVER BOARD CONTINUED

Item No.	Description	Part No.
	COILS	
L101	RF Choke	1803-3293-801
L102	RF Choke	1803-5125-903
L103	Ant., Low Band	1800-3293-901
L104	RF Choke	1803-5125-911
L105	Ant., High Band, Pri.	1800-3152-001
L106	RF Choke	1803-5125-909
L107	Ant., UHF	1800-3255-201
L108	RF, UHF	1800-3160-005
L109	10.7 MHz IF	1800-6055-902
L110	Not Used	
L111	RF Choke	1803-3268-201
L112	IF	1800-6055-701
L113	Buffer	1800-3152-009
L114	Tripler, 450 MHz	1800-3160-003
L115	RF Choke	1803-3268-211
L116	Oscillator	1800-5149-702
L117	RF Choke	1803-3268-211
L118	Oscillator	1800-5149-703
	CAPACITORS	
C114, C119, C131	Trimmer, 2.5-7 PF	1517-3295-301
C189	Trimmer, 4-11 PF	1517-3295-302
	RESISTORS	
R128	Variable 10K, Squelch	4751-3278-101
R137	Variable 10K, Volume	4751-3278-102

RECEIVER BOARD CONTINUED

Item No.	Description	Part No.
	CRYSTALS AND FILTERS	
Y101	Crystal, 10.245 MHz	2301-3151-601
Y102	Crystal, 11.2 MHz	2338-3283-201
CF101	Filter, Crystal, 10.7 MHz	2705-3232-200
XF101	Filter, Ceramic, 455 kHz	2700-3209-500
	LOGIC BOARD	
	TRANSISTORS	
Q201 Thru Q208	NPN	4801-0000-016
	INTEGRATED CIRCUITS	
IC201	Processor	3130-6072-104
IC202	Memory M5137 57	3130-3157-663
IC203	Not Used	
IC204	Regulator, 5V L7805CV	3130-0000-019
IC205	Regulator, 12V MC78L12ACP	3130-0000-016
IC206	Regulator, Negative, 24V	3130-0000-026
	DIODES	
CR201	Zener, 6V	4808-0000-025
CR202 Thru CR207, CR219	Silicon	4805-1241-200
CR208	Germanium	4807-1233-900
CR209	Silicon, Rect.	4806-0000-004
CR210	Not Used	
CR211 Thru CR218	Silicon, Rect.	4806-0000-004

MISCELLANEOUS

SPK-1	Speaker, 2 1/4 In. Round, 16 Ohm	1301-3298-301
T-1	Transformer, Power	5604-6074-800
	Keyboard	2001-6073-201
SW101 Thru SW111	Switch, Slide, SPDT	5113-5135-205
SW112	Switch, Slide, SPDT	5113-5140-603
SW113	Switch, Slide, DPDT	5113-5136-004
	Antenna, Telescope	1201-5108-801
	Power Cord, AC	6041-3215-900
	Knob, Volume and Squelch	2402-6065-902
	Case, Bottom	1411-7059-002
	Case, Top	1411-7059-102
	Door, Access	1411-7059-302
	Panel, Front	1411-7059-203
	Inlay, Function Sw.	2509-6066-002
	Inlay, Channel Sel.	2509-6076-401
	Insert, Panel	1405-5170-101
	Foot, Rubber	1402-3291-204